FIRST GLIMPSES OF THE ZOOLOGY OF THE NATUNA ISLANDS.

III. LIST OF THE FIRST COLLECTION OF MAMMALS FROM THE NATUNA ISLANDS.

By OLDFIELD THOMAS and ERNST HARTERT.

(With Field Notes by A. Everett.)

IN a previous article I gave an account of the first collection of birds from the Natunas (see *antea*, pp. 469-483). The present one contains the list of the mammals collected during the same time on Bunguran and Sirhassen Islands. It will be seen that the mammalian faunas of Bunguran and Sirhassen differ considerably; and, judging by the mammalia, it would seem that Mr. Everett was to a great extent right in his remarks quoted on p. 468 and alluded to on p. 483; at least the mammalian inhabitants of Sirhassen show a much closer relationship to those of Borneo than to those of the Malay Peninsula.

The species have been named by both of us, and the specimens compared carefully with the material in the British Museum, but Mr. Oldfield Thomas has alone named the *Chiroptera* and *Murinae*, and is consequently alone responsible for them.

The types of the new forms are in the British Museum, and the co-types in Mr. Rothschild's Museum; specimens of most of the other species are also preserved in both these collections.

Mr. Everett's notes are enclosed in brackets and signed with his initials.

E. H.

1. Semnopithecus natunae sp. nov.

a. Type.—ad. ♂. Bunguran, October 19th, 1893. Other specimens, all from Bunguran.

Size, proportions, and coloration showing a general resemblance to the *S. femoralis* group, the prevailing colours being black and white. While, however, the forehead, the fore-arms and hands, lower legs and feet, and tail (both above and below) are all deep glossy black, the back itself, with the occiput, nape, and shoulders, is brown, rather darker than "Prout's brown" of Ridgway. Thighs along a narrow strip on their outer aspect ashy grey, darkening distally into the black of the lower legs, but their posterior aspect, continuous with their inner sides, is perfectly white, giving a very peculiar and characteristic appearance to the animal, and one which is quite unlike any species known to us, with the one exception that *S. siamensis* has whitish patches in somewhat the same position. Whole of under surface, with the sides of the neck, the hairs on the insides of the ears, and lines down the inner sides of the arms and legs, pure creamy white.

Face thinly hairy throughout, the hairs black, except those on the nose, where there is a whitish patch.

Forehead with the hairs radiating outwards and backwards from a single central point about half or three-quarters of an inch behind the eyebrows; posteriorly these

hairs are much lengthened, as are those on the occiput, the latter being directed forwards and upwards in such a way that the black hairs of the forehead and the brown ones of the occiput meet to form a high crest on the crown.

[" Iris cinnamon brown. Eyelids, muzzle, and chin white; remainder of bare skin on face livid black. Palms and soles deep blackish brown" (♀).—A. E.]

Measurements of the type, an adult *male* in skin:—Head and body, 480 mm.; tail,* 550; hind-foot, 160. Skull: greatest length, 90 mm.; greatest breadth, 67. Nasal opening: height, 16·6; breadth, 10·3. Interorbital breadth, 7·4. Orbit: height, 23; breadth, 23. Intertemporal breadth, 45. Breadth of brain-case, 55. Palate: length, 27·5; breadth outside m^1, 31·6; breadth inside m^1, 20 mm.

A new-born specimen is coloured as follows:—Middle line of dorsal surface from crown to anus, and whole of tail, deep black, the breadth of the black on the back about an inch and a half; outer sides of shoulders greyish, and also the backs of the hands and feet commencing to become black. The whole of the rest of the animal, including the forehead, arms, and legs, wholly pure white.

This fine species, on whose discovery Mr. Everett is to be congratulated, is represented by a fine series, all of which are absolutely identical with one another, and all come from the same island.

Although among the many closely allied species of *Semnopithecus* it is difficult to be at all sure of their mutual affinities, it would seem that *S. natunae* is most nearly related to *S. femoralis* Horsf. and *S. siamensis* M. & S. Both of these have a similar arrangement of the hairs of the crown and nape; and, on the one hand, the former possesses the wholly black hands, feet, and tail of *S. natunae*, and, to a certain extent, the browner tint of the back, while, on the other, *S. siamensis* has its whitish underside and light thigh-patch, although united with a widely different general coloration.

The Bornean representative of *S. femoralis*, *S. chrysomelas* M. & S., approximates to *S. natunae* in the lighter colour of its chest and sides of neck, while, by having a more or less bicolor tail, it is further off than the typical race.

In one respect, however, all the three monkeys above mentioned differ from *S. natunae*—namely, by having two frontal centres of hair-divergence, a character which is particularly well seen in the young. In a baby *S. chrysomelas* from Sarawak there is a narrow median crest, with a whorl on each side of it, above the eyes; while, as already noted, there is in *S. natunae* only one (rather less well-defined) whorl in the median line above the nose, and the crest only begins at or behind the bregma. In other respects, allowing for a slight difference in age, the two young specimens before us agree very closely in the coloration of their body and limbs; but the tail of the young *S. chrysomelas* is sharply bicolor.

[Native name "Kŏkàh," which is onomatopoeic. These animals were common about the base of Mount Ranai, going in troops, and they commit great depredations on the native gardens. The irides are light cinnamon brown; face livid black, the eyelids and muzzle white; feet and hands very dark brown; the ears blackish externally, the outer edge and interior dull white, marbled to some extent with livid blackish spots. In an immature individual, barely half-grown, the white of the eyelids, nose, and chin was tinged with dull pink; and at the exterior angle of each orbit was a bare spot of bluish white showing very distinctly owing to its different tinge of colour, the skin of the face otherwise being livid black. With maturity these

* The tails of other examples are from 80 to 90 mm. longer than the above, and it is probable that the type-specimen has had his tail injured during life.

naked white spots at the angle of the orbits disappear. I kept this animal alive, intending to bring it home; but it succumbed to the severity of our return passage. It fed on the leaves of sweet potatoes and tapioca, and although it had been recently captured, in a few days it was very gentle and timid. The breeding season with these monkeys is either very prolonged, or is not defined at all, for I obtained them in October, when the rains were beginning, in all stages from a foetus three inches long to half-grown specimens. The following are the measurements of two adult individuals in the flesh :—

	♂	♀
Nose to root of tail .	16·25 inches.	16·25 inches.
Tail, without hair .	25·75 „	24·50 „
Hind-foot . .	6·50 „	6·00 „

A. E.]

2. Semnopithecus cristatus (Raffl.).

[I observed these monkeys on Sirhassen Island, where they appeared to be fairly abundant; but during my brief visit of five days I did not succeed in obtaining a specimen. When a gun is fired they make the forest resound with their deep groaning hoots—a sound curiously suggestive to the hearer of alarm and defiance together, and quite unlike their ordinary note, which may be syllabled "chŏkŏh." These monkeys are abundant on the adjacent mainland of Borneo. The Sirhassen Malays call them "Lutung."—A. E.]

3. Macacus cynomolgus (Schreb.). (See Blanford, *Mam. India*, p. 23.)

A typical specimen from Bunguran.

[Abundant in both Sirhassen and Bunguran, where they come down in large parties to the seashore, sitting in groups on the larger boulders, or playing and hunting for prey along the sands when the tide is out. In mature animals the face, hands, and feet are dark brown; the lower eyelids a paler brown; the upper eyelids and upper halves of the orbits whitish. In a very young *male* the bare skin of the face was livid brown, rather paler on the eyelids, and the hands and feet were dark brown. —A. E.]

4. Macacus nemestrinus (Linn.).

[These macaques do not exist in a wild state, but all the owners of cocoanut plantations keep one or more in captivity. They may be considered as one of the domestic animals of the Natunas, all being trained to work as gatherers of cocoanuts, the natives very seldom ascending the palms themselves. They are brought from Borneo, Singapore, and Sumatra, and are purchased while very young for a dollar or two apiece, and regularly trained for their work, a well-educated monkey, able to pick some five hundred nuts a day, being valued as high as fifteen dollars. The process of training consists in hanging up ripe nuts by a string which will break when twisted sufficiently long, and then the Malay takes the monkey's two paws in his hands and applies them to the sides of the nut, and twists it round until the support breaks and the nut falls, calling out to the animal at the same time "Putar!" which is the Malay for to twist round. When properly trained the monkey is sent up the palms, and picks as many ripe nuts as it can find, not touching the green ones unless it grows thirsty, when

it will pick one and descend to have it opened by its master. A light string is attached to the animal before it is sent up, and it takes its own time in the descent, investigating every cranny, seizing the geckoes, spiders, etc., that lurk therein, and halting to eat them before it goes on. When it reaches the crown of leaves, if it is idle, the Malay below has only to shout "Putar" to it, and it sets to work again.—A. E.]

The above story was first related by Sir S. Raffles, and afterwards by Mr. Carl Bock. Hartert was told the same in Deli, N.E. Sumatra, but only saw these monkeys at work in the Malay Peninsula. In Deli, Laukat, and Serdang, in Sumatra, the pig-tailed monkey was found by him commonly wild, and often kept in captivity by the planters. In a wild state they often used to fight with the dogs. They kept more to the ground than any other monkeys in Sumatra, the orang-outan perhaps excepted. In captivity they were found to be good-natured and docile, but sometimes also very treacherous and bad-tempered, especially old *males*.

5. **Tarsius spectrum** (Linn.).

[At Bunguran I could hear nothing of the existence of this animal; but the Malays at Sirhassen described it to me unmistakably under the name of "Imbing."—A. E.]

6. **Nycticebus tardigradus** (Linn.).

Sent from Bunguran only.

[The natives on Sirhassen did not appear to know this animal. At Bunguran it is probably not rare, though not often captured. Native name "Kukáng."—A. E.]

7. **Pteropus vampyrus** (L.).

Pt. edulis Geoff., Dobs. *et auct. al.**

Several from Bunguran, where they were found very common in the cocoanut plantations, and were seen continually flying about even at midday, their great wings showing red brown against the sun.

Distributed over the Malay Peninsula and the Malayan Archipelago.

8. **Pteropus hypomelanus** Temm.

Four from Sirhassen.

9. **Cynopterus marginatus** Geoff.

Four skins from Sirhassen, September 20th.

One skin from Bungnran, October 19th, and several in spirits. From the Himalayas to the Malay Peninsula and Islands.

[Found at Sirhassen among the crowns of the cocoanut palms in large parties. The colour varied from snuff-brown to mouse-brown, the *males* with ferruginous upper breasts, the young entirely dark mouse-brown. Young ones, evidently several weeks old, were found on September 20th, while some of the *females* had not yet brought forth, though the wet season was beginning.—A. E.]

* See *P. Z. S.*, 1892. p. 316.

10. **Cynopterus brachyotus** Müll.

[This species—if it be a distinct species from the foregoing one—occurred at Bunguran.—A. E.]

11. **Rhinolophus affinis** Horsf.

a. Sirhassen, September 23rd.

This specimen appears to belong to the small race of *R. affinis*, to which the provisional name of *R. affinis rouxi* Temm. was applied by one of us in 1892.* Its forearm is only 43 mm. in length.

12. **Megaderma spasma** (L.).

Six specimens from Bunguran.

Distributed over the Peninsula and Archipelago.

[Found in Bunguran in the hold of a ship laid up on the beach, and also in holes in trees.—A. E.]

13. **Vespertilio muricola** Hodgs.

Seven from Bunguran.

Found in the leaf-crowns of bananas. Mainland and Archipelago.

14. **Taphozous melanopogon** Temm.

Nine specimens from Bunguran, October.

Distributed over India to Borneo.

[Abundant in the rocky shelters formed by the large boulders heaped together at high-water mark on the shore at Bunguran.—A. E.]

15. **Crocidura** sp.

[According to the Malays, shrews exist on Sirhassen Island.—A. E.]

16. **Ptilocercus lowi** Gray.

[This remarkable animal was described to me, beyond doubt, as I think, by the Sirhassen natives, but it seemed to be unknown to the Bunguran people. The Sirhassen Malays called it "Pantus."—A. E.]

17. **Tupaia splendidula** Gray.

(*P. Z. S.*, 1865, p. 322.)

From Bunguran only. A single skin and two in spirits.

These specimens agree very fairly with the typical skin in the British Museum, which was said to have come from Borneo, but as among the large series of tree-shrews which have been received from that island of late years no specimen of it has occurred, it seems possible that the Natunas are its true habitat. This is the more probable as the spirit specimen referred by Gray to the same species in the original description proves on a renewed examination to be a young individual of *T. tana* Raffl., and, having been obtained by Sir Hugh Low, of course really did come from

* O. Thomas, *Ann. Mus. Genov.* (2), x., p. 923.

Borneo. In fact the incorrect determination of this spirit specimen was very possibly the sole cause of the asserted locality of "Borneo" for *T. splendidula*, as no habitat is put down for the typical skin in the original Museum register. Verreaux's own label for it has unfortunately not been preserved.

[Pretty abundant in Bunguran, where the natives call it "Tupai-pelandok." They did not seem to know of any other species of tree-shrew as inhabiting the island.—A. E.]

18. **Tupaia tana** Raffl.

A fine series from Sirhassen Island.

Inhabits Sumatra and Borneo.

19. **Galeopithecus volans** (L.).

Several of the grey and of the rufous variety from both Bunguran and Sirhassen Islands.

[Extremely common on Sirhassen and Bunguran in the cocoanut palms, hiding during the day among the bases of the leaves, and sallying forth at dusk to feed on the young leaves, moss, etc., their diet being exclusively vegetable. The native name is "Kubong-lumut"—"kubong" meaning any flying squirrel and "lumut" being the Malay for moss—in allusion either to the animals eating moss, or more likely to the fact that the common grey form very closely resembles in colour and markings a mossed and lichened palm trunk. Their principal food consists of the young leaves of the cocoanuts, and they do serious damage in the plantations by nibbling them. The ordinary palage is grey in its general hue, but I obtained one *female* with a young one clinging to her of which the palage was rather deep ferruginous speckled with white, the fur of the mother being of the usual marbled grey tint, but having the top of the head and nape strongly suffused with golden yellow. All the other young ones obtained followed the hue of their parents. The young were obtained in all stages, as in the case of *Semnopithecus natunae*, between the end of September and the end of October, from the foetus up to half-grown animals. Only one young one is brought forth, at any rate in the great majority of cases, and the young remain long with the mother. In the living animal the ears are dark carmine-red interiorly, passing into dark yellow towards the orifice. In some specimens there is found a pure yellow crescentic mark bordering the lower margin of each eye very conspicuously.—A. E.]

20. **Mydaus meliceps** F. Cuv.

A fine *male* in spirits from Bunguran.

This *Mydaus* agrees very well with examples of *M. meliceps* in the British Museum, in whose collection there are specimens from Sumatra, Borneo, and Java.

[Native name "Bubut." Common in Bunguran, but not easy to obtain, as the natives have a great objection to touching these animals on account of their odour. The presence of *Mydaus* on any island may be taken as proof conclusive that such island has never been wholly submerged since its severance from the mainland, for, owing to its burrowing habits and its evil smell, it is most improbable that it could ever have been introduced through the agency of floating vegetation or by man, whilst its powers of swimming, if any, must be very limited. Neither

this genus nor *Manis* appears to be represented in Sirhassen—nor indeed does any species of mammal seem to exist in that island (and probably the other South Natunas) which might not have been brought there by flight or swimming, on floating timber and vegetation, or by man.—A. E.]

21. **Paradoxurus hermaphroditus** (Pall.).

Bunguran.

[Native name "Musang." Common in cocoanut plantations on Bunguran.

Two other carnivores, according to the natives, occur on Bunguran, and one also on Sirhassen, but whether the species is the same on both islands I could not ascertain. As the Malays use the name "Teñgalung," they are doubtless civet-cats.—A. E.]

22. **Mus rattus** var.

Bunguran, four specimens.

The specimens belong to one of the white-bellied races of this variable species.

23. **Mus hellwaldi** Jent.

Two specimens from Bunguran.

24. **Mus sabanus** Thos.

One specimen from Bunguran.

["Tikus Bulan" of the Malays. ♀. Adult, October 16th, 1893. Tip of nose to root of tail, 8·6 inches; tail, 13·8 inches; hind-foot, 1·8 inch; length of ear from orifice, 1·1 inch. The ears, when laid forward, easily covered the orbits. The ears are light livid brown.—A. E.]

25. **Sciurus bicolor bunguranensis** subspec. nov.

a. Type.—ad. sk. ♂. Bunguran, October 7th, 1893.

A large series from Bunguran.

Very similar in size and proportions to its Sirhassen representative *S. b. albiceps*, although rather larger and with a longer tail. General colour a peculiar pale chocolate brown (perhaps nearest to "Prout's brown" of Ridgway), not unlike the dorsal colour of some of the Celebean pale-footed varieties of *S. bicolor*. This colour is very finely grizzled with yellowish, due to the presence of narrow subterminal rings of this colour on the brown dorsal hairs; there are also a certain amount of pure white hairs intermixed. The brown extends from the forehead over the neck, back, and sides, becoming on the sides of the neck, the flanks, and lower legs a deep reddish or russet; underside from neck to anus, and the inner sides of the limbs, a rather paler and clearer russet, quite different from the yellowish of the ordinary forms. A whitish patch on the outer side of each hip. Upper surface of muzzle, a ring round eyes, whole of ears, and upper surfaces of hands and feet, black. Sides of muzzle, at roots of whiskers, white. Cheeks grizzled grey, darkening under the chin to nearly black. Tail very long, in the upper aspect wholly brown like the back, although darker, but the hairs are light-coloured at their bases, and this lighter colour shows clearly on the under surface, bounded on either side by the brown tips of the long hairs and the black of the short hairs with which the actual under surface of the tail-substance is clothed.

Skull apparently quite as usual.

Measurements of the type, an adult *male*, in skin:—Head and body, 350 mm.; tail, 420; hind-foot, 63. Skull, basal length, 52·4; basilar length, 48·2; greatest breadth, 39; nasals, length, 19·4; greatest breadth, 11; interorbital breadth, 24·5; palate, length, 27·5; diastema, 13; length of upper molar series (crowns), 12·2.

This handsome squirrel, the representative of *S. bicolor* in Bunguran, differs considerably in colour from any other known form, while at the same time the series obtained by Mr. Everett shows that it is extremely constant in its own locality, and we are therefore compelled to assign a special name to it, reluctant as we are to add to the already encumbered synonymy of this intricate group.

One of the specimens is partially affected by albinism, the colours throughout being feebler and paler, and the back coarsely mottled with cream-colour.

26. **Sciurus bicolor albiceps** Desm.

Two specimens from Sirhassen. They are both alike, and are pale amber-brown above, and of a beautiful deep cream-colour below; but we do not doubt that—so far as our present knowledge goes—they should be assigned to the form to which the name *S. albiceps* has been applied, as there are very similar skins from N. Borneo in the British Museum. For the present, however, in view of the transitional specimens described by W. Sclater,* it seems better to treat this race as simply a subspecies of *S. bicolor*. Native name "Tupai-rajah," a name generally applied by the Malays to the large squirrels, as in Sumatra, Malacca, etc.

27. **Sciurus prevosti** Desm.

A fine series of this beautiful but common squirrel from Sirhassen only.

[Abundant in Sirhassen. I observed no sign of this species in Bunguran.—A. E.]

28. **Sciurus notatus** Bodd.

Both Bunguran and Sirhassen.

[Common on both islands.—A. E.]

29. **Sciurus lowi** Gray.

Sent in spirits from Sirhassen.

[Found in Sirhassen only. Occurs in suitable situations over the entire N.W. districts of Borneo.—A. E.]

30. **Sciurus tenuis** Horsf.

A series from Bunguran.

[Obtained only on Bunguran, where it is very common.—A. E.]

31. **Nannosciurus** sp. (?).

[A pigmy squirrel is described by the Malays as existing on Sirhassen.—A. E.]

* *Cat. Mamm. Ind. Mus.*, ii., p. 8, 1891.

32. **Pteromys nitidus** Desm.

Several dark rufous specimens from Bunguran.

["Kubong Kalok" of the Malays. Very common on the cocoanut palm. An adult *male* measured in the flesh as follows:—Nose to tail, 14·5 inches; tail without hair, 17·3 inches; tail with hair, 19 inches.—A. E.]

33. **Sciuropterus phayrei** Blyth (?).

(Blyth, *Journ. As. Soc. Beng.*, xxviii., p. 278.)

Three specimens in spirit from Bunguran.

We are in some doubt as to the determination of this flying squirrel, for want of authentic specimens of Blyth's *S. phayrei*, which must certainly be closely allied to it. For the present therefore we do not think it safe to describe the Natuna form as new, even if hereafter it may prove specifically separable.

The three specimens were found together in a hole in a tree.

34. **Tragulus javanicus** Desm.

Specimens received from Bunguran, but seen by the collector also in Sirhassen.

[Found in both islands. The Malays say that *Tragulus napu* is also found in Bunguran.—A. E.]

35. **Cervus equinus** (?).

[The deer is found in Bunguran only, where it has been introduced from Sambas by the Malays.

No *Cervulus* occurs either in Bunguran or Sirhassen, so far as I could hear. —A. E.]

36. **Sus** sp.

[Wild pig abound in Bunguran, but, curiously enough, they are unknown in the South Natunas.—A. E.]

37. **Halicore dugong** (Erxl.).

[The dugong frequents the coast of Bunguran, and doubtless of all the Natuna Islands.—A. E.]

38. **Manis** sp. incert.

[Is found on Bunguran, but I was not able to secure a specimen.—A. E.]